

Opportunities for Sea Cucumber Aquaculture

Market analysis on three species
of native Hawaiian sea cucumbers



Overview of Sea Cucumbers

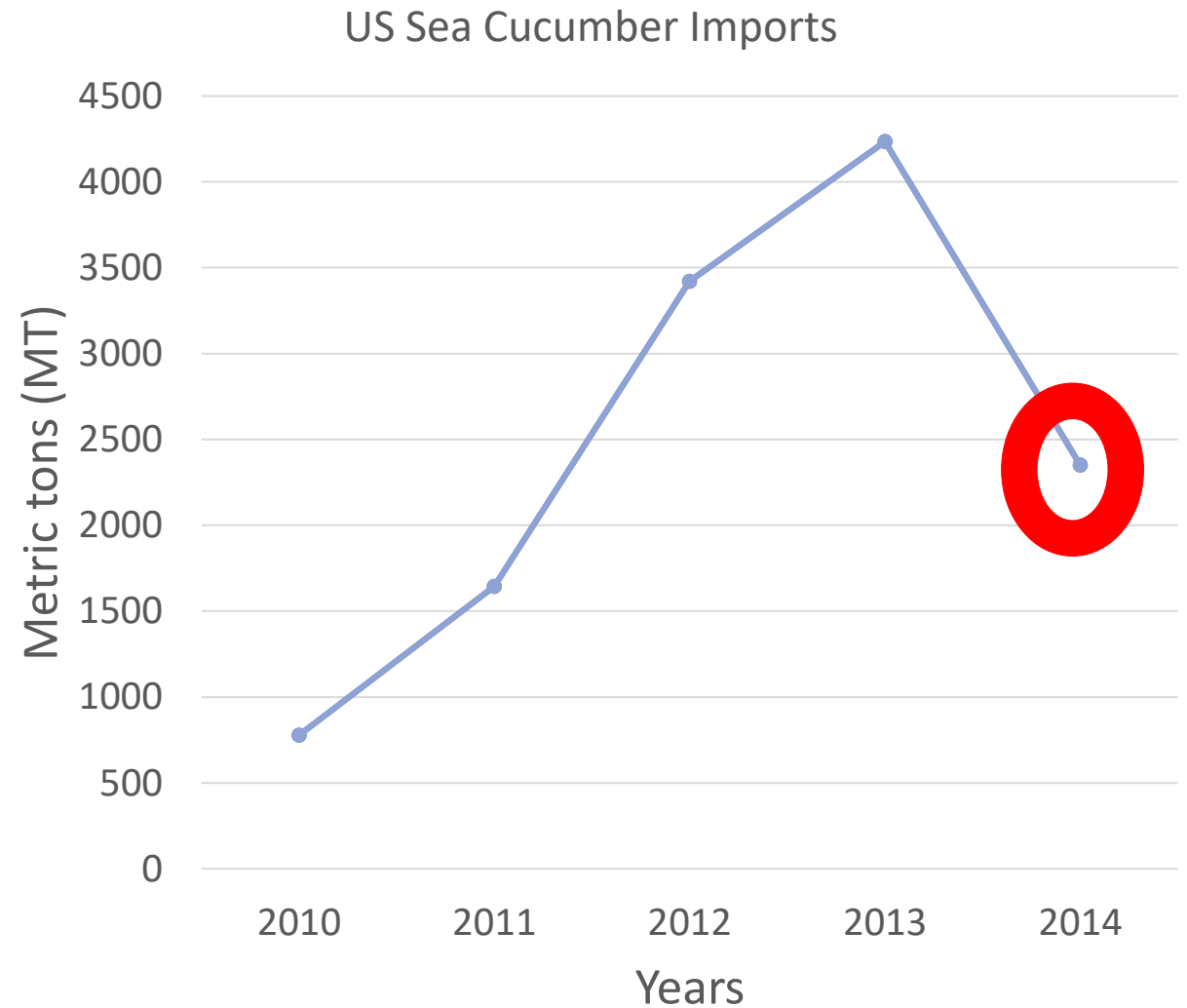
- Over 1700 species, 58 commercially important
 - Keystone species
- Consumed heavily in Asia
 - *Beche-de-mer* or *trepang*
 - Many health benefits
- Overfished & overexploited
 - Regulations
 - Hawai'i moratorium 2016
- Illegal trade is common



Unidentified species
Photo taken by Jack Reynolds

Sea Cucumber Imports

- Law Enforcement Management Information System (LEMIS)
- 2010-2014 Imports
 - 12,427 MT
 - 99% taken from the wild
- U.S. tightens restrictions on SW border in 2014
 - 77% of total imported species is sourced from Mexico
 - 2,350 MT



Market Trends

Apostichopus japonicus

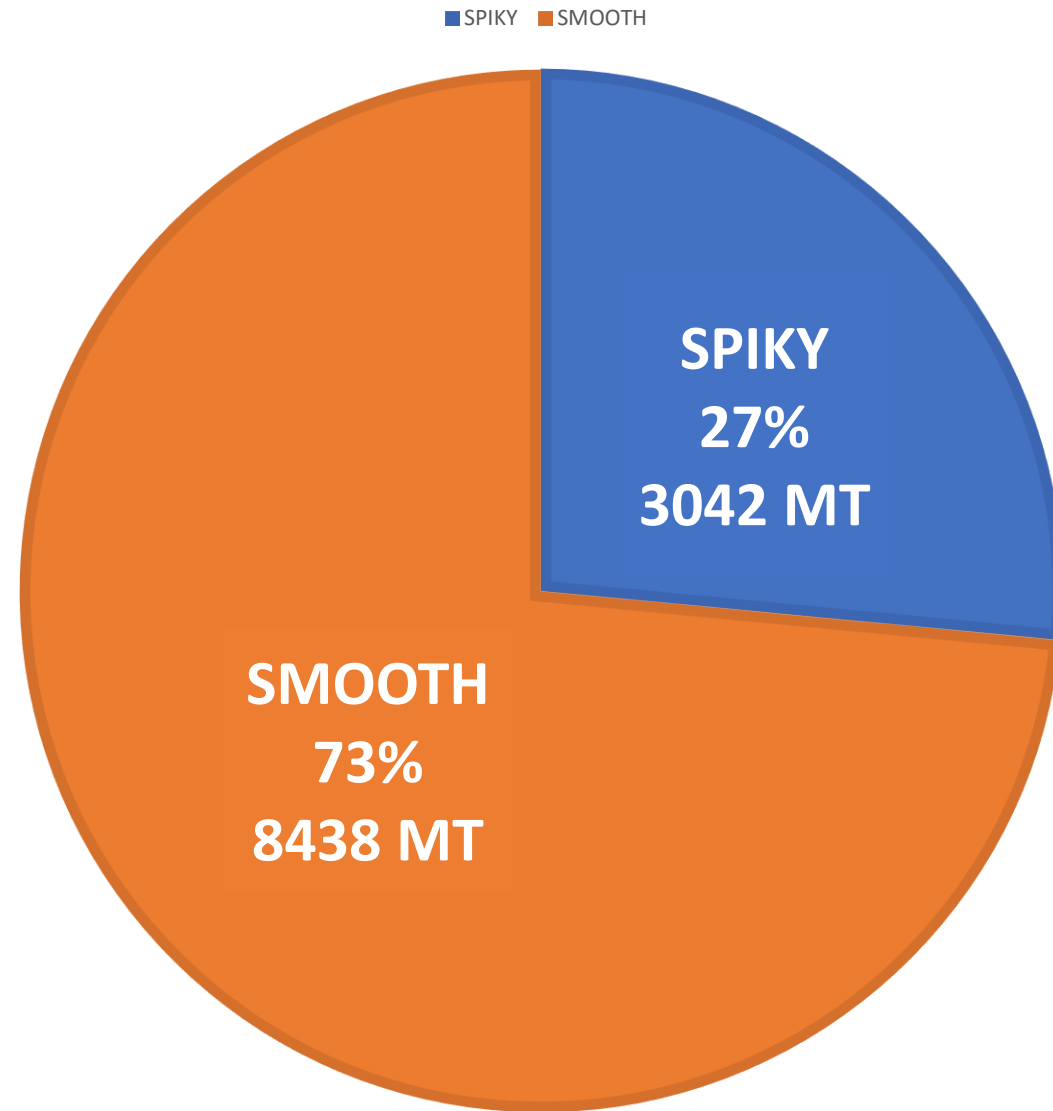


PROCESSED (photo by: S.W. Purcell)

Bohadschia vitiensis



PROCESSED (photo by: S.W. Purcell)

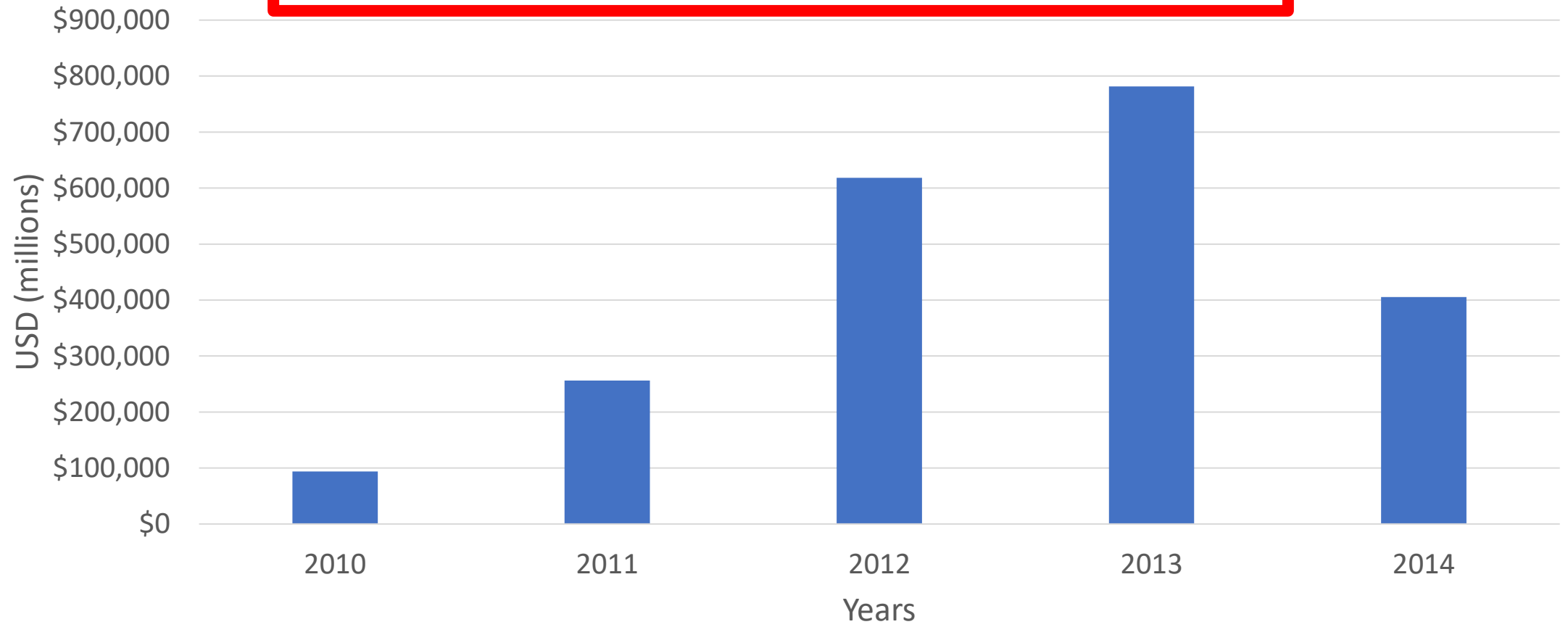


Market Trends

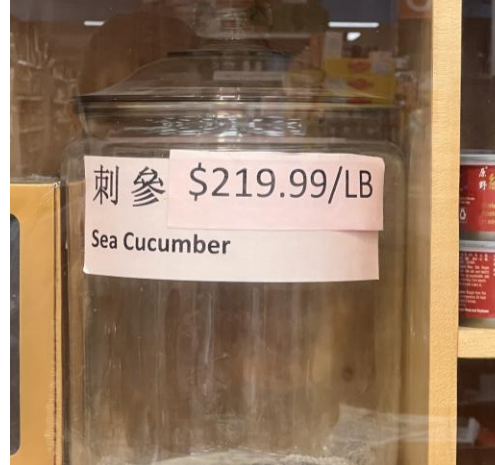
TOP 5 SPECIES IMPORTED		
SPECIES	MT	Texture
CUCUMARIA FRONDOSA	5,901	Smooth
ISOSTICHOPUS BADIONOTUS	2,579	Spiky
HOLOTHURIA SPECIES	1,833	Smooth
HOLOTHURIA MEXICANA	558	Smooth
STICHOPUS JAPONICUS	85	Spiky

Estimated Market Value

>2.16 billion USD



A Glimpse of the Market Today



Top U.S. Importers

Importers	Ports
I.S.F. TRADING, INC.	Houlton, ME
MARTIN VELAZQUEZ CORPORATION	San Diego
SEAWIN INC	Los Angeles
ULTIMATE INTERNATIONAL	Los Angeles
BLESSING INC	San Diego

Kaua'i Sea Farm

- Nomilo fishpond
 - 18 acres
 - Clams, oysters, and limu
- Two native species
 - *S. horrens* & *H. whitmaei*
- Potential markets
 - Sushi restaurants (namako)
 - Local dried & wet markets
 - Nutraceuticals
 - Aquariums
 - Restoration aquaculture



Thank you Questions?

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